

CLAIMS

What is claimed is:

- 1 1. A method for generating a file object identifier comprising the steps:
2 (a) allocating memory for said identifier;
3 (b) storing in said allocated memory the value of the disk volume holding the file
4 object;
5 (c) storing in said allocated memory the value of the disk block holding the file
6 object; and
7 (d) storing in said allocated memory the value of the offset within said disk block
8 holding the file object, said offset computed in multi-byte increments.
- 1 2. The method of claim 1 wherein said file object is one of a file, a directory, and a
2 symbolic link.
- 1 3. The method of claim 1 wherein said memory allocated for said identifier is 32
2 bits.
- 1 4. The method of claim 1 wherein the value of the disk volume holding the file
2 object is stored in 4 bits of said allocated memory.
- 1 5. The method of claim 1 wherein the value of the disk block holding the file object
2 is stored in 23 bits of said allocated memory.
- 1 6. The method of claim 1 wherein the value of the offset within said disk block
2 holding the file object is stored in 5 bits of said allocated memory.
- 1 7. The method of claim 1 wherein the value of the multi-byte offset increment within
2 said disk block holding the file object is at least 128 bytes.
- 1 8. The method of claim 1 wherein said file object identifier is a POSIX file serial
2 number.

- 1 9. A method for mapping a first file object identifier having a first bit size to a
2 second file object identifier having a second bit size comprising the steps:
3 (a) receiving said first file object identifier associated with a file object;
4 (b) transforming said first file object identifier into said second file object
5 identifier based on at least one file system characteristic; and
6 (c) providing said second file object identifier to facilitate access to said file
7 object.
- 1 10. The method of claim 9 wherein said file object is one of a file, a directory, and a
2 symbolic link.
- 1 11. The method of claim 9 wherein said second bit size is less than said first bit size.
- 1 12. The method of claim 9 wherein said first file object identifier comprises a disk
2 volume value, a disk block value and a block offset value.
- 1 13. The method of claim 9 wherein said at least one file system characteristic
2 comprises limiting the number of disks available in any logical volume to a 4 bit value.
- 1 14. The method of claim 9 wherein said at least one file system characteristic
2 comprises limiting the address granularity within a disk block to at least 32 bytes.
- 1 15. The method of claim 9 wherein said at least one file system characteristic
2 comprises limiting file lengths to at least 128 bytes.
- 1 16. The method of claim 9 wherein said second file object identifier is a POSIX file
2 serial number.
- 1 17. An article of manufacture having computer-readable program means embodied
2 therein for mapping a first file object identifier having a first bit size to a second file
3 object identifier having a second bit size, the article comprising:

4 (a) computer-readable program means for receiving said first file object identifier
5 associated with a file object;

6 (b) computer-readable program means for transforming said first file object
7 identifier into said second file object identifier based on at least one file system
8 characteristic; and

9 (c) computer-readable programs means for providing said second file object
10 identifier to facilitate access to said file object.

1 18. The article of manufacture of claim 17 wherein said file object is one of a file, a
2 directory, and a symbolic link.

1 19. The article of manufacture of claim 17 wherein said second bit size is less than
2 said first bit size.

1 20. The article of manufacture of claim 17 wherein said first file object identifier
2 comprises a disk volume value, a disk block value and a block offset value.

1 21. The article of manufacture of claim 17 wherein said at least one file system
2 characteristic comprises limiting the number of disks available in any logical volume to a
3 4 bit value.

1 22. The article of manufacture of claim 17 wherein said at least one file system
2 characteristic comprises limiting the address granularity within a disk block to at least 32
3 bytes.

1 23. The article of manufacture of claim 17 wherein said at least one file system
2 characteristic comprises limiting file lengths to at least 128 bytes.

1 24. The article of manufacture of claim 17 wherein said second file object identifier is
2 a POSIX file serial number.

1 25. A fault-tolerant computer having a proprietary operating system and support for
2 standards-compliant file operations comprising:
3 two central processing units (CPUs), operating synchronously;
4 two memory modules, each associated with one of said CPUs;
5 an operating system, providing operating system functionality and comprising a
6 standards-compliant interface and a proprietary interface; and
7 an application program, invoking said standards-compliant interface.

1 26. The fault-tolerant computer of claim 22 wherein said proprietary operating system
2 is Stratus Virtual Operating System (VOS).

1 27. The fault-tolerant computer of claim 22 wherein said standards-compliant file
2 operations are POSIX file operations.

1 28. The fault-tolerant computer of claim 22 wherein said standards-compliant
2 interface is a POSIX interface.

1 29. A method for mapping a first file object identifier having a first bit size to a
2 second file object identifier having a second bit size comprising the steps:
3 (a) receiving said first file object identifier associated with a file object;
4 (b) extracting a disk block value and a disk volume value from said first file
5 object identifier;
6 (c) locating a file object in a location on a disk specified by said extracted disk
7 block value and said extracted disk volume value;
8 (d) computing a temporary file object identifier for said located file object;
9 (e) iterating step (d) for file objects in said specified location on the disk until the
10 temporary file object identifier matches said first file object identifier;
11 (f) computing a second file object identifier for said file object with said
12 temporary file object identifier matching said first file object identifier; and
13 (g) providing said second file object identifier.

- 1 30. The method of claim 29 wherein said first file object identifier is a POSIX file
- 2 serial number.